

CLAIMS

1. An electromagnetic machine with a deformable diaphragm (1; 41; 51), the machine comprising at least one stationary part (6, 7; 16, 17; 16', 17'; 26, 27; 56, 57) 5 suitable for channeling a magnetic flux that interacts with at least one moving part (10; 20; 20'; 30; 60) having regions that are magnetically polarized (N, S) in such a manner that alternating displacement of the moving part and alternating magnetic flux variation in the 10 stationary part correspond, the moving part being drivingly connected to an edge (5; 45; 55) of the diaphragm such that alternating displacement of the moving part corresponds to deformation of the diaphragm, the machine being characterized in that the stationary 15 part and the moving part are arranged to confer rotary type displacement to the moving part.
2. A machine according to claim 1, characterized in that the moving part(s) (10; 20; 20'; 30; 60) is/are 20 substantially circularly cylindrical in shape and is/are constrained to turn substantially about its/their geometrical axis (or axes).
3. A machine according to claim 1, characterized in that 25 the or each stationary part comprises at least one coil (6; 16; 16'; 56) having a core (7; 17; 17'; 57) passing therethrough to form a magnetic path for the magnetic flux, which path is interrupted by one or more spaces extending between pairs of active walls (9; 19, 19'; 29) 30 of the core, the or each moving part comprising a body defined by two parallel faces (13) between which there extend magnetically polarized regions (N, S) that are disposed in circumferential manner so that two adjacent regions have opposite polarities, the or each moving part 35 (10; 20; 20'; 30; 60) being disposed in a space of the core (7; 17; 17'; 57) in such a manner that the faces of

the active portions of the moving part extend facing the active walls of the core.

4. A machine according to claim 3, characterized in that
5 the active walls (9; 19; 19'; 29) of the core (7; 17;
17'; 57) extend facing a central portion of the facing
moving part (10; 20; 20'; 30; 60) and present an area
that is less than the area of the magnetically polarized
regions of said moving part.

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5. A machine according to claim 1, characterized in that
the edge (5; 45; 55) of the diaphragm is engaged in a
peripheral notch (12) of the moving part.

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6. A machine according to claim 1, characterized in that
a connection member (15) extends between the edge of the
diaphragm (1) and the moving part (20).

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7. A machine according to claim 1, characterized in that
the diaphragm (1; 41) is circular or tubular, and in that
the electromagnetic machine has a plurality of moving
parts (10; 40) arranged to be diametrically opposite in
pairs and to turn in opposite directions.

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8. A machine according to claim 1, characterized in that
the moving parts (20) present unbalance disposed to
compensate for the alternating inertial forces of the
diaphragm (1).

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9. A machine according to claim 1, characterized in that
the diaphragm (1) extends between two rigid plates (2, 3)
of shapes that are adapted to impart traveling wave
motion to the diaphragm (1) when the diaphragm is driven
by the moving parts (10).